

Comparing the male *Stylops* with the female, Mr. Newport remarked especially on the peculiar organization of the former, as fitted for special instincts, perfection of vision and celerity of flight, conjecturing that the object of this in *Stylops* may be the detection on the wing of those *Hymenoptera* which carry about with them through the air the apodal female that awaits impregnation; and showed that all we yet know of the habits of *Stylops* is conformable to this view.

Returning then to the consideration of *Meloë*, the author showed that notwithstanding the structures with which it left the egg are fully developed, they are so on an inferior type of organization, like *Stylops* and like the *Anoplura*. The eye, although large and highly sensitive to light, is still but a single ocellus, fitted only for near vision. The limbs although strong are unguiculated, like those of the *Anoplura*, and fitted for clinging rather than for regular progression; and its mandibles, retaining the jointed, pediform structure of the corresponding organs in the carnivorous *Chilopoda*, are fitted for piercing soft structures, rather than for triturating or for incising their food. This fact, overlooked by the author in his former memoir, now induced him to believe that the young *Meloë* pierces and preys on the bee larva rather than that it subsists on its food. This he believes also may hereafter prove to be the true habit of the larva of most of the allied genera.

Specimens of the larva and imago *Stylops*, and of the larva, nymph and imago *Meloë*, were on the table for inspection.

ZOOLOGICAL SOCIETY.

January 26, 1847.—George Gulliver, Esq., F.R.S., in the Chair.

The following communication was read:—

DESCRIPTIONS OF SIX NEW SPECIES OF AUSTRALIAN BIRDS. BY JOHN GOULD, F.R.S.

CYSTICOLA LINEOCAPILLA, Gould. *Cys. rufa*; *plumis capitis et dorsi latè conspicuèque per mediam longitudinaliter nigro-fusco striatis*; *rectricibus maculâ albd infra ornatis*.

General plumage pale rufous, with broad and conspicuous striæ of blackish brown, forming lines down the centre of the feathers of the head and back, the under surface fading into white on the throat and centre of the chest; tail-feathers with a conspicuous blackish spot on the under surface near the tip; irides light reddish brown; bill and feet flesh-brown.

Total length, $3\frac{3}{4}$ inches; bill, $\frac{1}{2}$; wing, $1\frac{5}{8}$; tail, $1\frac{7}{8}$; tarsi, $\frac{5}{8}$.

Hab. Port Essington.

Remark.—Nearly allied to *C. exilis*.

MIRAFRA HORSFIELDII, Gould. *Mir. cinerea*; *mediis plumis, capite, dorso inferiore, alisque, fuscis*; *alis albo-marginatis*; *guld serie macularum intensè fuscæ semilunari ornata*.

General plumage ashy brown, with the centre of the feathers dark brown, the latter colour predominating on the head, lower part of

the back and tertiaries; wings brown, margined with rufous; over the eye a stripe of buff; chin white; under surface pale buff; throat crossed by a series of dark brown spots, arranged in a crescentic form; under surface of the wing rufous; bill flesh-brown at the base and dark brown at the tip; feet fleshy brown.

Total length, $5\frac{1}{2}$ inches; bill, $\frac{1}{2}$; wing, $2\frac{7}{8}$; tail, $2\frac{1}{8}$; tarsi, $\frac{7}{8}$.

Hab. Interior of New South Wales.

Remark.—Nearly allied to, but smaller than, the *Mirafra Javanica* of Dr. Horsfield.

AMYTIS MACROURUS, Gould. *Amy. corpore superiore fusco; plumis singulis lined angustâ albâ longitudinaliter per mediam ornatis; corpore inferiore nec aliter nisi pallidius picto; scapulis infra rubiginosis; caudâ fuscâ brunneo-marginatâ.*

Upper surface brown, each feather with a narrow stripe of white down the centre; under surface the same, but much paler; under surface of the shoulder pale rusty red; tail brown, margined with pale brown; irides hazel; base of the lower mandible horn-colour, remainder of the bill black; feet flesh-brown.

Total length, 7 inches; bill, $\frac{1}{2}$; wing, $4\frac{1}{4}$; tarsi, 1.

Hab. Western Australia.

Remark.—This is a more robust species than the two previously known, viz. *A. texilis* and *A. striatus*, from which it may also be distinguished by the much greater length and size of the tail.

SERICORNIS MACULATUS, Gould. *Ser. corpore superiore, alis, caudâque, fuscis; caudâ ad apicem latâ fasciâ nigro-fuscâ transversim ornatâ; rectricibus externis vix albo ad apices notatis; alis spuriiis nigris; internis pennarum pogoniis albo-marginatis; corpore inferiore griseo-albo.*

Upper surface, wings and tail brown, the latter crossed near the tip with a broad band of blackish brown, and the outer feathers slightly tipped with white; forehead and lores deep black; stripe above and a small patch below the eye white; spurious wing-feathers black, margined on their inner webs with white; under surface in some greyish white, in others washed with yellow; the feathers of the throat and chest spotted with black on a light ground; irides greenish white.

Female.—Differs in having the lores brown, and in being somewhat smaller than the male.

Total length, $4\frac{1}{2}$ inches; bill, $\frac{5}{8}$; wing, $2\frac{1}{8}$; tail, 2; tarsi, $\frac{7}{8}$.

Hab. Western and Southern Australia.

SERICORNIS OSCULANS, Gould. *Ser. (Mas) corpore superiore, alis caudâque brunneis; rectricibus, duobus intermediis exceptis, fasciâ nigrâ ad extremitatem ornatis; alis spuriiis nigris albo-marginatis; guld et medio abdomine albis, griseo vel flavo tinctis; paucis oblongis maculis in guld nigris.*

Male.—Upper surface, wings and tail dark brown, all but the two centre feathers of the latter crossed by a band of black near the extremity; spurious wing-feathers black, margined with white; lores black, above which on each side a patch of white continued in a fine

line over the eye; throat and centre of the abdomen greyish white in some and yellowish white in others, marked with a few oblong black spots on the throat.

Female.—Somewhat smaller in size, and with the lores brown instead of black.

Total length, $4\frac{1}{2}$ inches; bill, $\frac{5}{8}$; wing, $2\frac{1}{4}$; tail, 2; tarsi, $\frac{7}{8}$.

Hab. South Australia.

Remark.—Intermediate in size between *S. frontalis* and *S. humilis*.

SERICORNIS LÆVIGASTER, Gould. *Ser. corpore superiore fusco; caudæ, ad apicem gradatim nigricante, in apice albæ; alis spuriiis brunneis, pogoniis quarum internis albo-marginatis; corpore inferiore cervino lavato.*

Upper surface brown; tail deepening into black near the extremity and tipped with white; spurious wing-feathers dark brown, margined with white on their inner webs; lores and mark under the eye brownish black; above the eye an indistinct line of white; under surface washed with yellowish buff; irides greenish white.

Female.—Smaller than the male, and with the lores pale brown.

Total length, $4\frac{1}{4}$ inches; bill, $\frac{5}{8}$; wing, $2\frac{1}{8}$; tail, 2; tarsi, $\frac{7}{8}$.

Hab. Interior of Australia, near the Gulf of Carpentaria, where it was discovered by Mr. Gilbert.

Remark.—Nearly allied to *S. frontalis*.

February 23.—William Yarrell, Esq., Vice-President, in the Chair.

The following communications were read:—

I. OBSERVATIONS ON STRUTHIONINE BIRDS IN THE MENAGERIE AT KNOWSLEY. BY THE PRESIDENT.

I shall take this opportunity of noticing some of the differences which appear to me to characterize the Struthious tribe in their breeding, and which I rather think are not generally known.

I believe the general supposition to be, that no difference exists, and that they agree at this period with most of the Rasorial birds in being polygamous; but this is by no means the case.

What may be the truth with the head of the Family, the *African Ostrich*, we have had too few opportunities or means of judging. The *Emu* is strictly monogamous; and the male, who attends to the eggs, by no means approves of any other female than the favoured one coming near the nest.

The *Rheas*, on the contrary, are clearly polygamous; and with them the male not only selects the place for and forms the nest, but actually collects together in it the eggs* (which are frequently laid at random about the enclosure), in order that he may incubate them. He shows no signs of anger when the females approach, and in one instance two females have laid in the same nest. By analogy we may perhaps suppose that the *Ostrich* follows a similar plan.

* The manner in which this operation is accomplished is by inserting the beak between the egg and the ground, and rolling it along by the assistance of his long neck, exactly in the way that a boy would roll a cricket-ball along by the aid of a long stick with a hooked end to it.

There are differences also in their modes of copulation. If my memory does not deceive me, the *Struthio Camelus* does not, like other birds, mount on the back of the female, but merely places one foot on her back, the necks of the pair twisting about all the while like two snakes, but without holding.

The *Rhea*, on the other hand, seizes hold of the back of the neck; and the *Emu*, I think, is the one which straddles over the female during the operation with his legs on each side of her.

The *Rhea* lays from fourteen to twenty-five eggs; the *Emu* from twelve to seventeen.

2. DESCRIPTION OF A NEW RAT FROM SOUTH AUSTRALIA. BY J. E. GRAY, ESQ., F.R.S. &c.

MUS VELLEROSUS. *M. brunneus, albido-varius, ad caput obscurior; vellere prælongo, denso; pilis mollibus ad basin fusco-brunneis, inde pallidioribus, ad apicem albis; codario mollissimo, brunni-plumbeo; caudâ annulatim squamatâ, raris brevibus et rigidioribus setis obsitâ; auribus mediocribus, rotundatis.*

Hab. in campis Australiasianis inter fluvios Murray et Glenelg.

The skull resembles the typical Rats. The cutting teeth are yellow, moderate, slightly rounded in front, without any regular groove. The grinders are $\frac{2}{3}$, worn; the anterior upper oblong, formed of three transverse folds, the hinder being smallest; the second tooth is nearly circular, formed of two folds, the front fold largest, and having a notch on its inner side; the third tooth small, half ovate, with two notches on the inner side. The anterior lower grinder is formed of three, and the others of two folds; the anterior fold of the last tooth having a slight notch on the inside, and the posterior fold being smaller than the rest.

	in. lin.
Length of skull	1 9
——— tooth-line	0 4
Total length	7 6
Tail	4 6

This rat has the dentition and somewhat the general appearance of *Mus fuscipes*, Waterh., but the skull and animal are considerably larger, and the fur is very much longer and paler.

The specimens from which this description is taken were sent to the British Museum by His Excellency Capt. Grey, Governor of New Zealand.

3. ON TWO NEW GENERA OF CERTHINÆ. BY G. R. GRAY, ESQ., F.L.S. &c.

I beg to lay before the Meeting the following description of what I believe to be a new genus belonging to the subfamily *Certhinae*, under the name of *Caulodromus*.

Rostrum capite longius, latum, basi subdepressum, gracile, per totam longitudinem curvatum, lateribus a naribus usque ad apicem obtusum submarginatum fortiter compressis. *Gonyx* longus cur-

vatus. *Nares* laterales, anteriùs in sulco brevi lato siti, aperturâ magnâ rotundatâ nudâ. *Alæ* breves, basin caudæ operientes, fortiter rotundatæ, remige sextâ omnium longissimâ. *Cauda* brevissima, rectricum apicibus subacutis. *Tarsi* digito medio breviores, anticè squamis latis transversis muniti. *Digiti* longi, graciles, extimo quam intimo longiore basi coadunato, intimo basi vix coadunato; postico longo, ungue longo curvato armato.

CAULODROMUS GRACEI. *Caul.* rufescens, plumarum scapis strigâ rufo-albidâ notatis, pogoniis interioribus in dorso nuchâque nigris; tectricibus caudæ superioribus inferioribusque læte rufis, alis caudâque saturatè brunneis strigis duabus nigris alterâ à rictu alterâque (breviusculâ) à rostri basi ductis, gulâ pectore abdomineque medio rufescenti-albis rufo-brunneo variegatis.

Rufous brown, streaked narrowly down the shaft of each feather with rufous white; the inner web of the feathers of the back of neck and back black; the upper and under tail-coverts bright rufous; the wings and tail dark brown; two streaks of black, one from the gape and the other (rather short) from the base of the bill; the throat, breast and middle of the abdomen rufous white, varied with rufous brown.

Total length, 5 inches; bill, from gape, 1 inch; wing, 2 inches 2 lines; tarsi, 1 inch.

This proposed division differs from the typical form of *Certhia* by the length and form of the bill and the position and form of the nostrils, while the extreme shortness of the tail at once points out a great dissimilarity from those species that properly belong to the above-mentioned genus.

I have also before me another bird that appears to belong to the same subfamily, which I shall form into a distinct genus, under the name of

SALPORNIS.

Rostrum longum latum basi subdepressum, per totam longitudinem curvatum; lateribus à naribus fortiter compressis. *Gonys* elongatus, curvatus. *Nares* laterales, anticè in sulco lato brevi siti, aperturâ magnâ nudâ. *Alæ* longissimæ, usque ad caudæ apicem ferè attingentes, acutæ, remige primâ brevissimâ, secundâ ferè longitudinis tertiæ quartæque, quæ æquales et omnium longissimæ. *Cauda* breviuscula, quadrata, rectricum apicibus rotundatis. *Tarsi* medio digito breviores, squamis latis muniti. *Digiti* longi, fortes, intimo quam extimo brevioris basi parùm coadunato, extimo longius coadunato; postico longo, forti, ungue curvato armato.

The type of this proposed genus is already described by Major Franklin in the Proceedings of the Society under the name of *Certhia spilonota* (Proc. 1831, p. 121).

The differences exhibited between this and the former genus are at once seen in the form of the wings, which are lengthened and pointed, and of the tail, which has the ends of the feathers slightly rounded. These characters are like those of *Tichodroma*, while the

form of the bill and feet are similar to those of the genus proposed above.

The specimen of *Caulodromus* was kindly lent me by J. R. Grace, Esq., who procured it in Darjeeling : that of *Salpornis* was presented by B. H. Hodgson, Esq. to the British Museum, and forms part of a collection from Behar.

MISCELLANEOUS.

Microscopic Anatomy of the Shell of the Decapodous Crustacea.

By J. LAVALLE.

FROM my observations, says the author, the tegumentary apparatus of the *Crustacea* may be divided into two parts : 1st, an exterior one, which is incrustated with calcareous salts, and has no apparent vessels ; it is the carapace, the shell properly so called ; it alone forms the solid skeleton of the animal, and its inextensibility requires it to be shed at certain periods, to be replaced by a larger covering. 2nd, the other, situated in the interior, covers the first at all points : it is soft and highly vascular, it remains after the shedding of the tegument, and appears to be especially destined to reproduce a new one.

My observations apply to the shell alone, to that portion of the tegumentary apparatus which is cast annually, and I have purposely limited the subject, because it has been hitherto almost impossible to base a sufficiently settled opinion upon the nature of this coriaceous and hardened covering.

The solid portion of the tegumentary apparatus of the decapodous *Crustacea* which is shed differs essentially from shells, in one thing, that when treated with an acid it parts with its carbonate of lime without its organization being any way changed. In this respect it may be compared to the bones of the vertebrate animals.

The shell constitutes a covering of a single piece, continuous throughout, and which is only interrupted on the level of the natural openings. The flexible points, and the softest parts of this envelope differ from the solid parts only in the absence of calcareous salts ; their organization is perfectly identical. The articulations are only more or less complicated, but often very simple folds, of this covering. It is the same with the ossiform parts placed withinside the organs, and designed for the insertion of the locomotor muscles. The parts destined to break or grind the food are only more solid parts of the shell and of a denser texture. At the time of shedding, all these parts are cast off together. The shell presents, in the most perfect state, three layers quite distinct and easily separable :—The most external, homogeneous, transparent and corneous one, presents an opening only for the passage of the hairs or analogous organs, and covers the whole shell with a varnish often extremely thin ; it is evidently analogous to the epidermis of the higher animals ; I have designated it by the name of *epidermal layer*. The central layer is